

What is claimed is:

1. A display device, comprising:

a substrate comprising:

a first region including:

a pixel region including a pixel for producing an image; and

a peripheral region surrounding the pixel region; and

a second region including a pad connected to the pixel for applying an electrical signal from outside to the pixel; and

an insulation layer formed on the first and second regions with an opening formed in the insulation layer to expose the pad,

wherein the insulation layer has a first thickness in the opening and a second thickness in the peripheral region, and second thickness is greater than the first thickness.

2. The display device as claimed in claim 1, wherein the pixel region is arranged on the substrate, the peripheral region is arranged around the pixel region and the peripheral region surrounds the second region.

3. The display device as claimed in claim 2, wherein the pixel comprises a thin film transistor as a switching device, and the pad comprises a gate input pad and a data input pad.

4. The display device as claimed in claim 1, wherein the second thickness is about 0.3 to about 3.0 μm .

5. The display device as claimed in claim 1, wherein a difference between the second thickness and the first thickness is about 2.1 to about 2.4 μm .

6. The display device as claimed in claim 1, wherein a rugged structure is formed on the insulation layer in the pixel region.

7. The display device as claimed in claim 6, wherein a thickness of the insulation layer in the pixel region is no more than the second thickness.

8. The display device as claimed in claim 1, wherein the insulation layer comprises a first organic insulation layer formed in the first region and a second organic insulation layer formed in the first and the second regions wherein the second organic insulation layer comprises a rugged structure formed in the pixel region and an opening formed in the second region.

9. The display device as claimed in claim 1, wherein the insulation layer comprises:
first insulation layer patterns having reflective electrode patterns of a first insulation layer formed in the pixel region and peripheral patterns of the first insulation layer covering the peripheral region; and

a second insulation layer having a rugged structure in the pixel region and an opening exposing the pad in second region wherein the second insulation layer covers the first insulation layer patterns and the second insulation layer is continuously formed from the first region to the second region.

10. A reflection type liquid crystal display device, comprising:

a first substrate having a first region and a second region wherein the first region includes a pixel region on the first substrate where a pixel is formed to produce an image and a peripheral region surrounding the pixel region and a pad connected to the pixel is formed on the second region for applying an electrical signal to the pixel from outside;

a second substrate opposed to the first substrate;

a liquid crystal layer formed between the first substrate and the second substrate;

a reflection electrode formed at the central portion of the first substrate, the reflection electrode having a rugged structure comprising a relatively high portion and a relatively low portion; and

an organic insulation layer formed between the first substrate and the reflection electrode and formed in the first region and the second regions wherein the organic insulation layer has a rugged structure identical to the rugged structure of the reflection electrode at a central portion of the first region and an opening in the second region to expose the pad, and a second thickness of the organic insulation layer around the opening is less than a first thickness of the organic insulation layer in the peripheral region.

11. The reflection type liquid crystal display device as claimed in claim 10, wherein the rugged structure comprises a plurality of protrusions and a plurality of grooves.

12. The reflection type liquid crystal display device as claimed in claim 10, wherein the second thickness is about 0.3 to about 3.0 μm .

13. The reflection type liquid crystal display device as claimed in claim 10, wherein a difference between the second thickness and the first thickness is about 2.1 to about 2.4 μm .

14. The reflection type liquid crystal display device as claimed in claim 10, wherein a thickness of the organic insulation layer in the pixel region is no greater than the second thickness.

15. A method for manufacturing a display device, comprising the steps of:
forming a pixel in a pixel region of a first region of a substrate, the first region including the pixel region and a peripheral region around the pixel region, and forming a pad in a second region of the substrate for applying an electric signal to the pixel;
forming an insulation layer having an opening in the second region to expose the pad and wherein the insulation layer being formed in the first region and the second region and a second thickness of the insulation layer around the opening is less than a first thickness of the insulation layer in the first region; and
forming a pad electrode in the opening and on the insulation layer formed around the opening in the second region.

16. The method for manufacturing a display device as claimed in claim 15, wherein the pixel region is positioned on the substrate and the second region is positioned in the peripheral region of the substrate.

17. The method for manufacturing a display device as claimed in claim 16, wherein the pixel comprises a thin film transistor as a switching device and the pad comprises a gate input pad and a data input pad for applying an electric signal to the switching device.

18. The method for manufacturing a display device as claimed in claim 15, further comprising forming a reflection electrode on the insulation layer in the pixel region and forming a pad electrode on the pad in the second region.

19. The method for manufacturing a display device as claimed in claim 18, wherein the reflection electrode and the pad electrode are simultaneously formed by coating a metal layer composed of a reflective metal on the insulation layer and by patterning the metal layer.

20. The method for manufacturing a display device as claimed in claim 15, wherein the step for forming the insulation layer further comprises the steps of:

forming a first insulation layer on the substrate;

selectively removing the first insulation layer in the second region;

forming a second insulation layer in the first region and in the second region; and

forming the opening in the second insulation layer.

21. The method for manufacturing a display device as claimed in claim 20, wherein the first insulation layer and the second insulation layer are composed of organic resists.

22. The method for manufacturing a display device as claimed in claim 20, wherein the step for removing the first insulation layer in the second region further comprises:

forming a contact hole in the first insulation layer for connecting the pixel;

full exposing the first insulation layer with an exposure amount for forming the contact hole after a first mask is positioned over the first insulation layer to remove the first insulation layer; and

developing the exposed first insulation layer.

23. The method for manufacturing a display device as claimed in claim 20, wherein the step for forming the opening in the second insulation layer further comprises the steps of:

forming a rugged structure on the second insulation layer after a second mask is positioned over the second insulation layer;

exposing the second insulation layer with an exposure amount identical to an exposure amount for forming the rugged structure after the second mask for forming the opening is positioned over the second insulation layer; and

developing the exposed second insulation layer.

24. The method for manufacturing a display device as claimed in claim 15, wherein the step for forming the insulation layer further comprises:

forming a first insulation layer on the substrate;

patterning the first insulation layer to form an insulation layer pattern in the pixel region and to selectively remove the first insulation layer in the second region;

forming a second insulation layer in the first region and the second region; and

forming an opening in the second insulation layer in the second region.

25. The method for manufacturing a display device as claimed in claim 24, wherein the step for patterning the first insulation layer further comprises:

positioning a first mask on the first insulation layer for forming a rugged structure and a contact hole;

full exposing the first insulation layer with an exposure amount for forming the contact hole; and

developing the exposed first insulation layer.

26. The method for manufacturing a display device as claimed in claim 25, wherein the step for forming the opening is performed by positioning a second mask over the second insulation layer for forming the contact hole and the opening, exposing the second insulation layer and developing the exposed second insulation layer.

27. The method for manufacturing a display device as claimed in claim 15, wherein the step for forming the insulation layer further comprises the steps of:

forming an organic insulation layer on the substrate;

primarily exposing the organic insulation layer with a full exposure amount for removing the organic insulation layer on the pad;

partially exposing the organic insulation layer in the second region; and

forming an opening in the second region and partially removing the organic insulation layer around the opening in the second region by developing the exposed organic insulation layer.

28. The method for manufacturing a display device as claimed in claim 27, wherein the step for primarily exposing the organic insulation layer is performed by exposing the organic insulation layer with a full exposure amount after a first mask is positioned over the organic insulation layer for forming the opening and a contact hole for electrically connecting the pixel.

29. The method for manufacturing a display device as claimed in claim 28, wherein the step for partially exposing the organic insulation layer is performed by exposing the organic insulation layer and the second region with a lens exposure amount for forming a reflection electrode on the organic insulation layer.